Using Active RFID for Yard Management and Consigned Inventory Tracking

The Challenge

Managing consigned inventory across customer sites can be quite risky. With differing inventory methods and software systems, suppliers who are providing inventory and tracking its lifecycle are met with a serious challenge. How do I manage my inventory accurately for shrinkage? How do I ensure I always have enough product to meet the demand from my customers? These risks become even greater when the product is not on a store shelf but rather inside a trailer on a large truck yard.

A large manufacturer and distributor who serves the energy industry approached Omni-ID seeking a way to solve this issue. This customer needed a way to track its consigned inventory from the factory to distribution centers through to large laydown yards at customer locations and all the way back again. However, the product they provide does not lend itself to easy measuring. The product is shipped, partially used by the customer, and then returned.

The goal was to be able to measure the remaining product when it was returned so that our customer could accurately charge their customer for usage and at the same time, better manage their own on-site inventory.

A dedicated test facility was set up to replicate a utility yard — fully staged to scale. This allowed the Omni-ID team along with the customer to accurately evaluate the workflow and develop a solution based on real-world scenarios. From these scenarios, it was determined that the best way to track and measure this inventory was though a combination of Omni-ID's Power 415 active RFID tags (attached to the asset carriers and read by Omni-ID gateways as they entered the yard) along with Omni-ID's Asset Tracking software (including a mobile implementation for handheld readers) customized for this workflow. The Power 415 tag was specifically chosen for its combination of active and passive technologies. This unique tag, the only of its kind in the market, delivers the exceptional read range required over a large yard, while eliminating the concern of functionality should the battery have any issues. Additionally, the passive element enables tracking and commissioning with standard readers without requiring the proprietary system inherent in active RFID, making this a more user-friendly and cost-effective solution.

The Solution

With successful results from the test, the solution — including Omni-ID Power 415 tags, gateway readers and asset tracking software with asset location services (RTLS) — was implemented to follow this process:

At Dispatch: A handheld reader scans the barcode and the Power 415 active tag that is placed on the product carrier. Omni-ID's Asset Track Mobile (ATM) software associates the two and reports to the Asset Track (AT) server. The gateway sees the active beacon and flags the asset as being shipped.

Receiving: Packages affixed with a Power 415 tag are delivered by truck and receipt is acknowledged by the first read active radio beacon by the Omni-ID gateway.

In-process Outbound/Inbound: All product is dispatched and returned in the open beds of utility trucks so that the tagged carriers can be read as they enter and leave the yard. The Asset Track system will update the product's status as "on job" or "returned" with a date and time stamp providing exact material flow reports.

Consumption Report: Upon recognition of an Inbound In-Process event, the product carrier is then routed to a digital scale where a fixed reader will read the passive RFID element in the Power 415 tag, and Asset Track will associate the weight to the carrier. Based upon package weight, Asset Track will calculate the remaining amount of product and write that into user memory on the tag and update the database in Asset Track server. The resulting metrics are available at a dashboard level that crosses multiple sites with information.

Perpetual Inventory: The active element of the tag, which can be pinged regularly, enables the customer to periodically (or on demand) access a real-time inventory of all products in the yard via their customized dashboards in Omni-ID's AT software.

The Results

The benefits gained through this implementation are:

Increased customer uptime

Accurate inventory management

Reduced inventory shrinkage

Omni-ID has developed expertise in developing systems to handle multiple sites and multiple customers. This particular customer is planning to roll out this solution across its footprint. A firewalled "mulit-tenant" approach is planned such that the manufacturer will have visibility to its entire inventory spread across all customers' yards, while limiting individual customers visibility to just their own inventory. This solution will allow the manufacturer to efficiently manage inventory efficiency across sites and regions.

To learn more about Omni-ID's yard management solutions, contact us today!